

OBJECT-ORIENTED PROCESSOR DESIGN AND DESIGN  
METHODOLOGIES

ABSTRACT OF THE DISCLOSURE

A distributed processing system having a host processor including a host  
5 communication infrastructure (HCI) configured for communication with said host  
processor; a plurality of class processors each having an associated private localized  
read/write memory; and a plurality of application program interface modules each  
configured to provide an interface between said host communication infrastructure  
and at least one said class processor, wherein each said class processor responds to  
10 selected data messages on said HCI to perform selected computations utilizing said  
read/write memory. This embodiment provides an ideal architecture for fabrication  
on a single chip and avoids processor and bus bottlenecks by providing distributed  
processing power with local memory for each class processor.

Also provided is a method for designing a distributed processing system for  
15 an application. The method includes steps of partitioning the application into  
functions and data messages; configuring a host processor having a host  
communication infrastructure (HCI) to pass data messages via the HCI to control  
the application; configuring a plurality of class processors to compute the functions  
into which the application is partitioned in response to the data messages; and  
20 interconnecting the class processors to the host processor via application program  
interface modules in a star configuration. Systems designed in accordance with this  
method embodiment are well-suited for integration on a single chip, and can be  
easily updated and modified as necessary, because changes made to a class  
processor have minimal effect on the remainder of the system.